

## CLAIM AMENDMENTS

### 1. (Currently Amended)

~~A Silicon~~ silicon nitride mould crucible parts, particularly ~~crucibles~~ for use in connection with directional solidification and pulling of silicon single crystals, characterized ~~in that where the crucible the mould parts consist~~ consisting of  $\text{Si}_3\text{N}_4$  particles made by nitriding compacted particulate silicon, the crucible has pores, having a total open porosity between 40 and 60% by volume, and where more than 50% of the pores in the a surface of the mould parts crucible has have a size which is larger than the means size of the  $\text{Si}_3\text{N}_4$  particles.

### 2. (Currently Amended)

The crucible ~~Mould parts~~ according to claim 1, characterized ~~in that~~ wherein the crucible is ~~mould parts are~~ coated with silicon nitride particles having an average particle size of less than  $50\ \mu\text{m}$ .

### 3. (Withdrawn)

Method for the production of silicon nitride mould parts, particularly crucibles for use in connection with directional solidification of silicon, where particulate silicon having a particle size of less than  $100\ \mu\text{m}$  is formed to a mould part and subjected to nitridation for conversion of the silicon particles to  $\text{Si}_3\text{N}_4$ , characterized in that the forming is carried out under such a pressure and with such a particle size distribution of the silicon particles that the finished silicon nitride mould part has an open porosity between 40 and 60% by volume and

where more than 50% of the pores in the surface of the finished mould part are greater than the mean size of the  $\text{Si}_3\text{N}_4$  particles.

4. (Withdrawn)

Method according to claim 3, characterized in that the shaping of the mould parts from the silicon particles is carried out at a pressure of below 200 Mpa.

5. (Withdrawn)

Method according to claim 3, characterized in that the shaping of the mould parts are carried out using vibration.

6. (New)

A method of directional solidification and pulling of silicon single crystals, comprising:

filling a crucible with particulate silicon, wherein, the crucible consists of  $\text{Si}_3\text{N}_4$  particles made by nitriding compacted particulate silicon, the crucible has pores, a total open porosity between 40 and 60% by volume, and more than 50% of the pores in a surface of the crucible has a size which is larger than the means size of the  $\text{Si}_3\text{N}_4$  particles;

melting the silicon in the crucible in a furnace to form molten silicon in the crucible; and

cooling the molten silicon in the crucible.

7. (New)

The method of claim 6, further comprising:  
coating an inside wall surface of the crucible with a silicon nitride particles having an average particle size of less than 50  $\mu\text{m}$ .

8. (New)

The method of claim 6, wherein the melting is conducted in a furnace at a temperature of 1500°C and argon gas is supplied to the furnace.

9. (New)

The method of claim 6, wherein the cooling is conducted initially by lowering the temperature at 60°C per hour until a temperature of 1375°C is reached and then cooling to room temperature.

10. (New)

The crucible of claim 1, wherein the crucible is made from silicon particles having a particle size less than 100  $\mu\text{m}$ .

11. (New)

The crucible of claim 10, wherein the crucible is made by compacting silicon particles at a pressure below 200 Mpa prior to nitrating.

12. (New)

The crucible of claim 11, wherein the compacting is conducted by vibration.